

REMARKS

Prior to entry of this amendment, claims 4-16 and 18-21 are currently pending in the subject application. Claims 4, 6, 7, 9, and 15 are independent. In this amendment, claims 4-5, 15-16 and 19 have been amended to more clearly claim the subject matter of the present invention. No new matter is added by the amendments to claims 4-5, 15-16 and 19. Entry of the foregoing amendments and favorable reconsideration in light of the following remarks is respectfully requested.

A. Introduction

In the outstanding Office Action Made Final:

claims 4 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over “A Novel Scheme for Streaming Multimedia to Personal Wireless Handheld Devices” to Zheng et al. (“the Zheng et al. reference”) in view of U.S. Patent No. 6,732,313 to Fukushima et al. (“the Fukushima et al. reference”) and U.S. Patent Publication No. 2005/0036546 to Rey et al. (“the Rey et al. reference”);

claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Zheng et al. reference in view of the Fukushima et al. and Rey et al. references and further in view of U.S. Patent No. 6,658,019 to Chen et al. (“the Chen et al. reference”);

claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Fukushima et al. reference in view of the Rey et al. reference; rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable the Fukushima et al. reference in view of the Rey et al. reference and further in view of U.S. Patent No. 5,708,473 to Mead (“the Mead reference”);

claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable the Fukushima et al. reference in view of the Rey et al. reference and further in view of U.S. Patent Publication No. 2002/0188648 to Aweya et al. (“the Aweya et al. reference”);

claim 19 was objected to as being dependent upon a rejected base claim, but indicated that claim 19 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and

claims 6-13 and 20-21 were allowed.

B. Asserted Obviousness Rejection of Claims 4 and 14

In the outstanding Office Action Made Final, claims 4 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Zheng et al. reference in view of the Fukushima et al. and the Rey et al. references. This rejection is respectfully traversed for at least the following reasons.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), all the claim limitations of the rejected claims must be described or suggested by the cited document(s).¹ In addition, the rejection must establish that it would have been obvious for one of ordinary skill in the art to have modified or combined the teachings of the cited document(s) in the manner applied to reject the claims.² One way to establish this would be to show that there is some suggestion or motivation, either in the cited document(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the cited document(s) or to combine the teachings from those document(s).

It is respectfully submitted that the cited documents do not meet these criteria, because no combination of the Zheng et al. reference with the Fukushima et al. reference or the Rey et al. reference would describe or suggest all of the claim limitations of rejected claims 4 and 14, and therefore, a *prima facie* case of obviousness has not been established.³ For example, claim 4, as amended, recites, *inter alia*:

¹ See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). See also MPEP § 2143.03.

² See *KSR International, Co. v. Teleflex, Inc.* No. 04-1350 (U.S. Apr. 30, 2007).

³ The applicants do not concede that a successful combination could be made, or that the rejection demonstrates some suggestion or motivation either in the cited documents themselves or in the knowledge generally available to one of ordinary skill in the art to modify the cited documents or to combine teachings from those documents.

- (a) transmitting packets of an MPEG-2 frame in real-time, the packets of the MPEG-2 frame including one or more I-frame packets and one or more non I-frame packets;
- (b) checking for any transmission error in the transmitted one or more I-frame packets and determining a number of non-received I-frame packets resulting from a transmission error; and
- (c) if any transmission error is generated, prior to transmission of subsequent packets of a subsequent MPEG-2 frame including one or more subsequent I-frame packets and one or more subsequent non I-frame packets, discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets.

It is respectfully submitted that the Zhang et al. reference does not describe or suggest at least “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets”, as recited in claim 4.

According to the rejection, on pages 3-4 of the Office Action Made Final,

Zheng et al. clearly shows and discloses a computer readable medium (inherently taught) and selective retransmission method, comprising transmitting packets of an MPEG frame in real time, checking for any transmission error after the transmission, and retransmitting only packets belonging to a certain type of frame.

The Zheng et al. reference, however, does not describe or suggest “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets”.

The Zheng et al. reference describes, instead, a completely different type of retransmission scheme than that claimed in claim 4. For example, the Zheng et al. reference is directed toward a retransmission scheme, in which an entire received frame is discarded if an error threshold is exceeded, and the entire frame is retransmitted. For example, quoting from page 33, section II, paragraph 3 of the Zheng et al. reference,

If the number of errored packets in an I frame is higher than an acceptable error threshold for the I frame, the packets belonging to the I frame are discarded, and the I frame is retransmitted from the multimedia server.

The rejection further concedes that the Zheng et al. reference does not describe or suggest this claim limitation. As stated on page 4 of the Office Action Made Final, “Zheng et al. does not disclose retransmitting only packets of an I-frame without a corresponding number of non I-frame packets for a subsequent I-frame.” Accordingly, the Zheng et al. reference is deficient, and fails to describe or suggest at least “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets”.

The Fukuskima et al. reference does not cure this deficiency of the Zheng et al. reference. At most, the Fukuskima et al. reference appears to describe a method of transmitting data wherein packets are assigned a priority, queued in a retransmission buffer based on the assigned priority and transmitted by the retransmission buffer if an error occurs. The Fukuskima et al. reference, however, does not describe or suggest at least “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets”, as recited in claim 4.

The Rey et al. reference does not cure the deficiency of the Zheng et al. reference or the Fukuskima et al. reference noted above. At most, the Rey et al. reference appears to describe a method of retransmitting data by employing a complex weighing scheme wherein frames or segments of a frame are encapsulated in Packet Data Units (PDU) that are assigned a priority level and grouped into priority groups. The PDUs of a group are then broken down

to achieve constant PDU sizes when possible, in order to make data transmission more efficient. The Rey et al. reference, however, does not describe or suggest at least “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets”, as recited in claim 4. In view of the above, it is respectfully submitted that any combination of the Zheng et al. reference with the Fukushima et al. reference and/or the Rey et al. reference would still fail to describe or suggest at least the claim limitations of claim 4.

Claim 14 includes limitations similar to those in claim 4 and is therefore allowable for at least the same reasons. Accordingly, it is respectfully submitted that the rejection fails to establish a *prima facie* case of obviousness, and claims 4 and 14 are in condition for allowance. Therefore, applicants respectfully request that the rejection of claims 4 and 14 be favorably reconsidered and withdrawn.

C. Asserted Obviousness Rejection of Claim 5

In the outstanding Office Action Made Final, claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Zheng et al. reference in view of the Fukushima et al. and Rey et al. references and further in view of the Chen et al. reference. This rejection is respectfully traversed for at least the following reasons.

As noted above in section B with reference to the asserted obviousness rejection of claims 4 and 14, no combination of the Zheng et al. reference with the Fukushima et al. reference and/or the Rey et al. reference describes or suggests all of the claim limitations of claim 4. It is noted that claim 5 depends from and includes all limitations of claim 4.

The Chen et al. reference fails to cure the deficiencies of the Zheng et al. reference with the Fukushima et al. reference and/or the Rey et al. reference noted above. At most, the

Chen et al. reference appears to describe a method of transmitting data wherein an automatic repeat request scheme (ARQ) is applied to data based on an assigned sensitivity of the data. The Chen et al. reference, however, fails to describe or suggest at least “discarding a number of the subsequent non I-frame packets equal to the number of non-received I-frame packets resulting from the transmission error, and retransmitting the non-received I-frame packets as part of the subsequent packets of the subsequent MPEG-2 frame in place of the discarded subsequent non I-frame packets” as recited in claim 4, from which claim 5 depends.

In view of the above, any combination of the Zheng et al. reference with the Fukushima et al. reference and/or the Rey et al. reference and the Chen et al. reference would still fail to describe or suggest at least the claim limitations of claim 5. Accordingly, it is respectfully submitted that the rejection has failed to meet the requirements for a *prima facie* showing of obviousness, and claim 5 is in condition for allowance. Therefore, applicants respectfully request that this rejection be favorably reconsidered and withdrawn.

D. Asserted Obviousness Rejection of Claim 15

In the outstanding Office Action Made Final, claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Fukushima et al. reference in view of the Rey et al. reference. This rejection is respectfully traversed for at least the following reasons.

No combination of the Fukushima et al. reference with the Rey et al. reference describes or suggests all of the claim limitations of rejected claim 15, and therefore, a *prima facie* case of obviousness has not been established.⁴ For example, claim 15, as amended, recites, *inter alia*:

a frame detector adapted to detect whether a frame type of the packet is an I-frame;

⁴ The applicants do not concede that a successful combination could be made, or that the rejection demonstrates some suggestion or motivation either in the cited documents themselves or in the knowledge generally available to one of ordinary skill in the art to modify the cited documents or to combine teachings from those documents.

a transmission error detector adapted to detect any non-received I-frame packets due to any transmission error generated during transmission of the I-frame packets; and
a retransmission function unit adapted to output to the transmitting side MAC layer a retransmission message and sequence number information of the non-received I-frame packets if any transmission error exists, and to receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame.

It is respectfully submitted that no combination of the Fukushima et al. reference with the Rey et al. reference describes or suggests at least “a retransmission function unit adapted to ... receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame”, as recited in claim 15.

According to the rejection, on page 7 of the Office Action Made Final,

Fukushima et al. clearly show and disclose a selective retransmission apparatus that includes a frame detector, a transmission error detector and a retransmission function unit that transmits a retransmission message and a sequence number of a non-received packet according to a detection result from the frame detector and receives the packets through retransmission

The Fukushima et al. reference, however, does not describe or suggest at least the claim limitations noted above. As noted above in section B with reference to the rejection of claims 4 and 14, at most the Fukuskima et al. reference appears to describe a method of transmitting data wherein packets are assigned a priority, queued in a retransmission buffer based on the assigned priority and transmitted by the retransmission buffer if an error occurs. The Fukuskima et al. reference, however, does not describe or suggest at least “a retransmission function unit adapted to ... receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame” as recited in claim 15.

Furthermore, the Rey et al. reference does not cure the deficiency of the Fukuskima et al. reference noted above. As noted above in section B with reference to the rejection of claims 4 and 14, at most the Rey et al. reference appears to describe a method of

retransmitting data by employing a complex weighing scheme wherein frames or segments of a frame are encapsulated in Packet Data Units (PDU) that are assigned a priority level and grouped into priority groups. The PDUs of a group are then broken down to achieve constant PDU sizes when possible, in order to make data transmission more efficient. The Rey et al. reference, however, does not describe or suggest at least “a retransmission function unit adapted to ... receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame” as recited in claim 15.

In view of the above, it is respectfully submitted that any combination of the Zheng et al. reference with the Fukushima et al. reference and/or the Rey et al. reference would still fail to describe or suggest at least the claim limitations of claim 15. Accordingly, it is respectfully submitted that the rejection fails to meet the requirements for a *prima facie* showing of obviousness, and claim 15 is in a condition for allowance. Therefore, applicants respectfully request that the rejection of claim 15 be favorably reconsidered and withdrawn.

E. Asserted Obviousness Rejection of Claim 16

In the outstanding Office Action Made Final, claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Fukushima et al. reference in view of the Rey et al. reference and further in view of the Mead reference. This rejection is respectfully traversed for at least the following reasons.

As noted above in section D with reference to the rejection of claim 15, no combination of the Fukushima et al. reference with the Rey et al. reference describes or suggests all of the claim limitations of claim 15. It is noted that claim 16 depends from and include all limitations of claim 15.

Furthermore, it is respectfully submitted that the Mead reference fails to cure the deficiencies of the Fukushima et al. reference and the Rey et al. reference noted above.⁵ At most, the Mead reference appears to describe a method of encoding video frames, but fails to describe or suggest at least “a retransmission function unit adapted to ... receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame” as recited in claim 15, from which claim 16 depends.

In view of the above, no combination of the Fukushima et al. reference with the Rey et al. reference and the Mead reference describes or suggests at least the claim limitations of claim 16. Accordingly, it is respectfully submitted that the rejection fails to meet the requirements for a *prima facie* showing of obviousness, and claim 16 is in a condition for allowance. Therefore, applicants respectfully request that the rejection of claim 16 be favorably reconsidered and withdrawn.

F. Asserted Obviousness Rejection of Claim 18

In the outstanding Office Action Made Final, claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Fukushima et al. reference in view of the Rey et al. reference and further in view of the Aweya et al. reference. This rejection is respectfully traversed for at least the following reasons.

As noted above in section D with reference to the rejection of claim 15, no combination of the Fukushima et al. reference with the Rey et al. reference describes or suggests all of the claim limitations of claim 15. It is noted that claim 18 depends from and include all limitations of claim 15.

⁵ The applicants do not concede that a successful combination could be made, or that the rejection demonstrates some suggestion or motivation either in the cited documents themselves or in the knowledge generally available to one of ordinary skill in the art to modify the cited documents or to combine teachings from those documents.

Furthermore, it is respectfully submitted that the Aweya et al. reference fails to cure the deficiencies of the Fukushima et al. reference and the Rey et al. reference noted above.⁶ At most, the Aweya et al. reference appears to describe a method of adjusting a queue size dependent upon the number of active flows, but fails to describe or suggest at least “a retransmission function unit adapted to ... receive the non-received I-frame packets through retransmission by the transmitting side MAC layer in place of an equal number of subsequent non I-frame packets of a subsequent MPEG-2 frame” as recited in claim 15, from which claim 18 depends.

In view of the above, applicants respectfully submit that no combination of the Fukushima et al. reference with the Rey et al. reference and the Aweya et al. reference describes or suggests at least the claim limitations of claim 18. Accordingly, it is respectfully submitted that the rejection fails to meet the requirements for a *prima facie* showing of obviousness, and claim 18 is in a condition for allowance. Therefore, applicants respectfully request that the rejection of claim 18 be favorably reconsidered and withdrawn.

G. Allowable Subject Matter

Applicants note with appreciation the indication of allowable subject matter in claim 19. Applicants further note with appreciation the allowance of claims 6-13 and 20-21. It is respectfully submitted, however, that all of the pending claims are in condition for allowance.

H. Entry of Amendment Requested

Applicants respectfully submit that the pending claims are in condition for allowance, and that the claims, as amended, overcome the rejections set forth in the outstanding Office Action Made Final. Further, the instant amendments merely clarify the intended subject matter of the claims, and do not affect the scope of the claims. Thus, no new matter is added

⁶ The applicants do not concede that a successful combination could be made, or that the rejection demonstrates some suggestion or motivation either in the cited documents themselves or in the knowledge generally available to one of ordinary skill in the art to modify the cited documents or to combine teachings from those documents.

by these claim amendments. Accordingly, it is respectfully submitted that consideration of the instant amendment does not place an undue burden on the Examiner, and entry of the above claim amendments presented after final is respectfully requested.

I. Conclusion

The above remarks demonstrate the failings of the outstanding rejections, and are sufficient to overcome them. However, while these remarks may refer to particular claim elements, they are not intended to, nor need they comprehensively address each and every reason for the patentability of the claimed subject matter over the applied art. Accordingly, applicants respectfully submit that the claims are allowable for reasons including, but not limited to, those set forth above, and patentability of the claims does not depend solely on the particular claim elements discussed above.

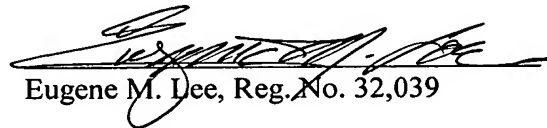
If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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Date: December 19, 2007



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